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Are Small Rural Banks Credit-Constrained? A Look at the Seasonal Borrowing Privilege in the Eighth Federal Reserve District

A TRADITIONAL belief about rural credit markets, particularly agricultural credit markets, is that small rural banks have limited access to sources of funding and limited opportunities to lend outside their immediate communities. Rural banks' ability to meet local loan demand, so the theory goes, is constrained by a relatively inelastic supply of local deposits and insufficient access to nonlocal or national credit markets. Moreover, such institutions tend to experience deposit outflows during periods of high seasonal loan demand as individuals with a seasonal need for funds (like farmers) draw down their deposit balances. To meet the seasonal loan demand of such industries as agriculture and tourism, many observers argue that rural banks must keep a relatively high

proportion of their assets in low-interest-bearing, highly liquid securities during other times of the year.

The Seasonal Borrowing Privilege (SBP), one of three Federal Reserve discount window programs, was designed to address this problem by permitting banks with strong seasonal patterns in loans or deposits to obtain funds from Federal Reserve Banks. Although the program is highly popular among participants, some observers have questioned a key historical feature of the SBP, as well as the program's justification itself. Noting that seasonal loans were made at a below-market rate of interest (the discount rate), critics have argued that the lack of credit availability, even if it were a problem, was no

reason for the Fed to step in and provide credit at a subsidized rate.¹ Other critics, citing the tremendous innovations in financial markets since the program began in 1973, have questioned whether rural banks continue to face funding constraints today or whether they are still the only source of credit for their communities.² The criticism has increased with the volume of lending through the SBP.

This article describes the seasonal borrowing program and examines its usage by banks in the Eighth Federal Reserve District from 1984 through 1990.³ The Eighth District has a large number of agricultural banks; in some years, District banks have accounted for as much as one-third of all borrowings under the SBP. A key question to be addressed is the extent to which the program has fulfilled the objectives set out by the Federal Reserve Board in 1973. The article then presents an analysis of the program's continued necessity.

DEFINING THE PROGRAM

Purpose of the Program

The seasonal borrowing program was established in April 1973 by the Board of Governors of the Federal Reserve System (hereafter, the Board) to help member banks meet seasonal funding requirements. The program was adopted as part of amendments to Regulation A, "Advances and Discounts by Federal Reserve Banks," which became effective April 19, 1973. Under Section 201.2 of the revised Regulation A, "General Principles," the Board outlined its rationale for the program:

Extending credit to member banks to accommodate commerce, industry, and agriculture is a principal function of Reserve Banks. . . . Federal Reserve credit is available for longer periods (than adjustment credit) to assist a member bank that lacks reasonably reliable access to national money markets in meeting seasonal needs for funds arising from a combination of expected patterns of movement in its deposits and loans.⁴

The Board's decision to establish the SBP was based in large part on the findings of a 1971 Federal Reserve study of the discount window. In evaluating the sources and uses of funds at small rural banks, the study found that

the available information supports the view that small rural banks, concentrated in the sixth through eleventh Federal Reserve districts, have serious disadvantages relating to their organizational structure. In many cases the prohibition of branching precludes growth to large size. This restriction on growth and geographic expansion frequently results in a high degree of deposit and asset specialization that promotes variability in deposits and loans. Such variability may be accommodated by holding relatively large volumes of liquid assets or by borrowing. If liquid assets are relied on, substantial portions of bank assets may be unavailable for local loans and the cost of lending will be correspondingly higher.⁵

The study found that small unit banks in rural areas, even those affiliated with correspondents, faced limited access to funding from the federal funds market and the certificate of deposit (CD) market, largely because of information asymmetry among large and small banks in these markets. In the study's own words, the

lack of readily available information about smaller banks would, in general, tend to make them higher-risk investments to potential lenders. In particular, their lack of diversification would increase the likelihood of problems as seen by lenders, without any offset that might be warranted by more detailed but costly investigation.⁶

Program developers thought that providing a reliable source of loanable funds would make it easier for these banks to manage their assets and liabilities, enabling them to better meet the credit demands of their communities throughout the year, that is, increase local lending. Before the program's inception, banks with strong seasonal fluctuations in loans relative to deposits would accommodate seasonal needs by liquidat-

¹This argument lost most of its force in early 1992, when banks that borrow seasonal credit began paying a market-related interest rate.

²See, for example, Graham (1979) and Stevens (1990). Stevens has also raised another issue: that unpredictable shifts in seasonal borrowings have complicated the implementation of monetary policy. See Stevens (1990) for a discussion of this issue.

³The Eighth District includes Arkansas, eastern Missouri, the southern portions of Illinois and Indiana, the western portions of Kentucky and Tennessee, and northern Mississippi.

⁴See Board (1973) for a reprint of the revised Regulation A.

⁵See Board (1971), pp. 64-65.

⁶Board (1971), p. 54.

How the SBP Works

As illustrated in the "before" and "after" balance sheets at right, the SBP allows a bank to maintain a stable securities portfolio while simultaneously increasing its loan portfolio. Before the hypothetical bank obtains a seasonal credit line with its local Reserve Bank, its first- and third-quarter balance sheets might look something like the left-hand panels of the figure. Seasonal loan demand is assumed to be low in the first quarter and peak in the third quarter. With stable core deposits and insufficient access to purchased funds, the bank's asset portfolio in the first quarter would be composed of \$50 in securities and \$50 in loans (\$20 in loans to seasonal businesses and \$30 in other loans). To meet peak loan demand in the third quarter, the bank would sell \$20 of its securities portfolio to fund an additional \$20 of loans to businesses that need seasonal loans (loans to seasonal businesses increase from \$20 to \$40, while securities holdings fall from \$50 to \$30). The bank's loan-to-deposit ratio rises from 50 percent in the first quarter to 70 percent in the third quarter.

After a bank becomes a seasonal borrower, it can increase its loans to seasonal businesses in the peak period of demand without shrinking other assets (loans to seasonal busi-

nesses increase from \$20 to \$40 while securities holdings stay constant); it can now fund seasonal loans while increasing the bank's total assets and liabilities by the amount of the credit extension (\$20). More importantly, the bank is able to increase other loans at all periods of the year: in both the first quarter and the third quarter, the bank is able to carry \$50 in other loans compared with \$30 before the bank becomes a seasonal borrower. Its loan-to-deposit ratio rises from 70 percent in the first quarter to 90 percent in the third quarter. Note that these ratios are both higher than those obtainable before the bank became a seasonal borrower.

Also note that, in this example, the bank's ratio of seasonal loans to total loans actually *declined* after the bank became a seasonal borrower, because it did not use the SBP to increase loans to seasonal businesses. It instead increased the proportion of loans to nonseasonal borrowers. Other outcomes, including an increase in the proportion of loans to seasonal businesses, are possible because a bank presumably allocates seasonal borrowings to maximize the return on its asset portfolio. The composition of the asset portfolio after borrowing, therefore, will vary by bank. Most importantly, a borrowing bank is making more loans than it did before using the SBP.

ing some of their securities holdings. In periods of seasonal loan demand, these banks would sell securities, using the proceeds to fund loans. When seasonal loans were repaid, securities holdings would rise again.⁷ A description of how the program affects asset and liability management appears in the shaded insert above.

Program Administration

Although the program has undergone a number of changes since 1973, much of its

structure remains the same.⁸ To qualify, banks must be small (less than \$500 million in total deposits) and able to demonstrate sizable and recurring seasonal swings in net funds availability, defined as total deposits less total loans. After satisfying a portion of the seasonal need from their own resources—that is, after meeting a deductible—eligible banks may borrow funds from their Federal Reserve Bank to bridge the remaining gap for up to nine months each year, paying a variable rate of interest.⁹ All seasonal

⁷See Graham (1979) and Stevens (1990) for more detail on the historical rationale for the program.

⁸In 1980, for instance, the program was open to nonmember institutions as a result of the Monetary Control Act. The amount of seasonal loan funding that banks are required to meet from their own resources (the deductible) and the maximum size of an eligible institution have changed several times over the years. See Appendix A of Board (1990) for more detail.

⁹The interest rate on outstanding seasonal credit is computed as the average of the federal funds rate and the secondary market rate on 90-day large CDs over the previous reserve maintenance period, rounded to the nearest five basis points. This formula became effective January 9, 1992. In prior years, banks participating in the SBP paid the basic discount rate on outstanding credit, which afforded users a subsidy when the discount rate was below market rates of interest. The rationale for changing the interest rate charged on seasonal credit can be found in Board (1990), pp. 14-18.

Balance Sheet of a Hypothetical Bank Before and After Becoming a Seasonal Borrower

BEFORE				AFTER			
First Quarter				First Quarter			
Assets		Liabilities		Assets		Liabilities	
Cash	10	Deposits	100	Cash	10	Deposits	100
Securities	50			Securities	30		
Loans		Capital	10	Loans		Capital	10
Loans to				Loans to			
Seasonal				Seasonal			
Businesses	20			Businesses	20		
Other Loans	30			Other Loans	50		
Total Assets	110	Total Liabilities and Capital	110	Total Assets	110	Total Liabilities and Capital	110
Third Quarter				Third Quarter			
Assets		Liabilities		Assets		Liabilities	
Cash	10	Deposits	100	Cash	10	Deposits	100
Securities	30			Securities	30	Borrowings	20
Loans		Capital	10	Loans		Capital	10
Loans to				Loans to			
Seasonal				Seasonal			
Businesses	40			Businesses	40		
Other Loans	30			Other Loans	50		
Total Assets	110	Total Liabilities and Capital	110	Total Assets	130	Total Liabilities and Capital	130

borrowings must be fully collateralized and most have weekly or 30-day maturities; seasonal loans can be rolled over provided program requirements are being met. Program users are permitted to sell federal funds while they are borrowing seasonal credit, as long as net fed funds sales (fed funds sold less fed funds purchased) do not exceed the bank's normal operating pattern, that is, the pattern that existed before the bank became a seasonal borrower.¹⁰ A more detailed description of the qualifying

process and the technical aspects of the program is provided in the appendix.

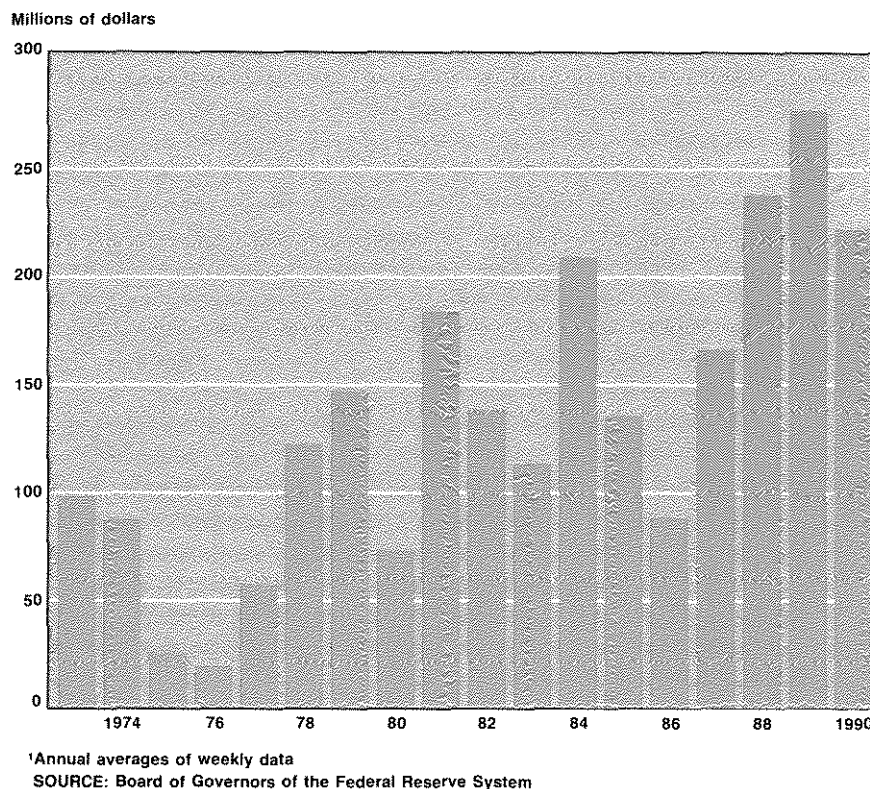
Pattern of Borrowing

Seasonal borrowings in the Eighth District (and elsewhere) have generally followed the agricultural credit cycle, because most banks that use the program face seasonal loan demand from farmers. The amount of seasonal borrowings outstanding typically rises during the

¹⁰A related indicator of a rural bank's dependence on local investments is its volume of sales in the federal funds market. With limited local lending opportunities, small rural banks may find the federal funds market to be their best alternative use of deposits. While this behavior would seem counter to the logic of the SBP, the program permits banks, simultaneously, to sell fed funds and borrow from the discount window. According to Melichar (1980), the Board decided in 1976 to allow the sale of fed funds while borrowing seasonal credit because most small banks had

become year-round sellers of fed funds. A great proportion of these banks were keeping secondary reserves in fed funds rather than Treasury bills at the same time their overall liquidity was declining. In this context, fed funds were being used to manage reserve requirements, rather than as an alternative investment to loans. In addition, because the bulk of the fed funds market consists of one-day (or overnight) loans, program officials do not view it as a perfect substitute for the long-term borrowing privilege provided under the SBP.

Figure 1
Average U.S. Weekly Seasonal Borrowings Outstanding,
1973-90¹



spring when crops are planted, reaching a peak in late summer when crops are harvested; they decline during the fall and winter as farmers receive payments for their crops and repay their loans.

Program changes since the mid-1970s have greatly expanded the number of banks that qualify for seasonal credit, the time frame for borrowing, and the size of seasonal lines that qualifying banks can obtain.¹¹ A key factor influencing the growth of the SBP during the 1980s was the passage of the Monetary Control Act of 1980, which extended access to the discount window to nonmember depository institu-

tions. Taken together, these changes led to an increase in the number of banks participating in the program (from 205 in 1973 to 615 in 1988), and an increase in the amount of average weekly credit outstanding (which rose from \$89 million to \$235 million over the period). Figure 1 illustrates the trend in borrowings over the period 1973-90. These liberalizations in program restrictions on net seem to have increased aggregate seasonal borrowing by increasing the number of borrowers rather than the amount of credit extended to each borrower; average borrowing per institution has remained almost constant over time.¹² Still, actual program usage

¹¹See Board (1990), Appendix B, Attachment A.

¹²Though the level of borrowing peaked in 1988, the number of seasonal borrowers peaked in 1989, when 721 banks received seasonal borrowings. The amount of credit outstanding reached an all-time high of \$513 million during the week ending July 26, 1989. Program usage subsequently declined in 1990 and 1991. Although the reasons for declining usage are not known precisely, the slowing

economy and weak loan demand, combined with the Board's announcement that a market rate of interest would be charged on seasonal borrowings beginning in 1992, probably have been contributing factors.

remains low relative to the number of banks potentially qualified to use it.¹³

SEASONAL BORROWING IN THE EIGHTH DISTRICT

Because the SBP is designed for relatively small banks in areas dominated by a seasonal industry, like agriculture or tourism, the mid-western Federal Reserve districts—Chicago, Kansas City, Minneapolis and St. Louis—host the vast majority of program users. In the late 1980s, Eighth District banks (St. Louis District banks) were among the SBP's largest users of seasonal credit.¹⁴ The amount of credit extended to these banks has risen substantially in recent years as the number of banks eligible for the program and efforts to increase awareness of the program by discount window officers have increased.¹⁵ Since 1984, the Federal Reserve Bank of St. Louis' Credit Office has maintained a database on all District institutions applying for discount window credit, including seasonal credit. These data may help provide an answer to the question: Is the program meeting its objectives?

Table 1 provides some descriptive statistics on District banks that participated in the program from 1984 to 1990. In 1984, the first year for which complete weekly data on seasonal borrowers are available, 42 District banks participated in the program. The number of banks using the program steadily increased through the rest of the decade. By 1988, the number of participants had more than tripled to 137. The number of borrowers peaked at 151 in 1989, although the average weekly amount of seasonal credit outstanding for that year was down from the previous year. The average amount of borrowings outstanding per week rose from \$18.8 million in 1984 to \$94.9 million in 1988, while the average size of the borrowing banks peaked at \$75.6 million in deposits in 1987, then declined to \$57.5 million in 1990.

The annual average loan-to-deposit ratio for seasonal borrowers was relatively constant over the seven-year period, varying between 65 and 70 percent. Within any given year, however, this ratio fluctuated substantially, ranging by as many as 20 percentage points between its minimum and maximum value. The loan-to-deposit ratio typically climbed several percentage points during the peak period of borrowing (defined in table 1 as a five-week period around the week where borrowings outstanding peaked), as banks funneled a great proportion of these borrowings into loans. The intra-year relationship between seasonal borrowings and the loan-to-deposit ratio for 1989-90 (the year of peak usage) is illustrated in figure 2. This pronounced seasonal pattern and the close correlation between the loan-to-deposit ratio and seasonal borrowings are consistent with one justification for the program: a class of small banks with strong seasonal loan and deposit flows does exist.

A number of other characteristics of seasonal borrowers are consistent with the rationale and current application of the program. The ratio of agricultural production loans to total loans, for example, is not only higher for seasonal borrowers than comparably sized nonborrowers, but also shows considerably more intra-year variability. In 1989, for example, the agricultural loan ratio for program users showed a range of almost 5 percentage points compared with the 1.3 percentage point range for nonborrowers. Evidence of a seasonal shortfall of funds can also be gleaned from data on fed funds purchases and sales. Fed funds purchased tend to be higher and fed funds sales tend to be lower during the peak period of seasonal borrowing than their average values over the course of the year, indicating that banks face a liquidity shortfall in the summer months.

These results are reinforced by comparing seasonal borrowers with comparably sized non-borrowers. Table 2 compares selected third

¹³Graham (1979) notes that the portion of eligible Ninth District banks borrowing seasonal credit declined from 19 percent in 1974 to 11 percent in 1978. Yorke and Herman (1982) note that, in the Tenth District, less than one-half of eligible member institutions used the program (on average) over the 1974-80 period. And Stevens (1990) estimates that in 1988, when the level of seasonal borrowing reached its peak, less than 20 percent of eligible banks nationwide sought and obtained seasonal credit.

¹⁴See Graham (1979) and Yorke and Herman (1982) for analyses of seasonal borrowing during the 1970s in the Ninth and Tenth Federal Reserve Districts, respectively.

¹⁵These efforts were launched with a Board press release dated March 12, 1985, which stated: "Reserve Banks will be making special efforts to acquaint depository institutions with both the regular and temporary seasonal credit facilities." Subsequently, the St. Louis Credit Office sent general information mailings about the SBP to all Eighth District banks and targeted mailings to certain institutions with strong seasonal swings in deposits and loans. In addition, an annual renewal letter is sent to all banks that qualified for seasonal credit in the previous year, where data show a continued seasonal pattern.

Table 1

Descriptive Statistics, Eighth District Seasonal Borrowing Program, 1984-90
 (dollar amounts in millions)

	1984	1985	1986*	1987	1988	1989	1990
Number of participants	42	47	51	88	137	151	124
Average deposits (annual)	\$61.3	\$63.7	\$71.8	\$75.6	\$74.6	\$62.3	\$57.5
Loan/deposit ratio (annual)	.68	.70	.65	.68	.68	.68	.66
Minimum (week)	.63	.65	.63	.62	.66	.65	.64
Maximum (week)	.73	.85	.68	.71	.71	.72	.70
Peak five-week period	.72	.74	.67	.70	.71	.71	.69
Seasonal borrowings							
Minimum outstanding (week)	\$3.0	\$3.5	\$0.1	\$0.3	\$1.7	\$15.2	\$6.1
Maximum outstanding (week)	49.2	47.9	47.3	89.5	209.8	188.1	167.4
Mean outstanding (week)	18.8	19.0	14.1	44.4	94.9	88.5	76.6
Agricultural loans/ total loans (annual range)							
Borrowers	15.6-19.8%	12.4-16.2%	10.5-13.6%	8.8-11.4%	8.0-12.6%	8.4-13.3%	11.2-16.8%
Nonborrowers ¹	11.4-12.7%	10.0-11.9%	9.4-11.0%	8.0-9.5%	7.6-9.0%	7.2-8.5%	7.4-8.6%
Net fed funds purchased ² (mean week)	\$31.5	\$27.5	\$52.4	\$66.3	\$18.8	\$0.2	-\$121.9

* 53 observations (53 Wednesdays)

¹ District banks with total deposits of less than \$500 million.

² A negative sign indicates that banks, on average, were net sellers of fed funds.

SOURCES: Credit Office, Federal Reserve Bank of St. Louis; FFIEC Reports of Condition for All Insured Commercial Banks, 1984-90.

quarter 1989 average balance sheet ratios for Eighth District seasonal borrowers with those of nonborrowers.¹⁶ In general, the composition of program users' assets and liabilities differs from that of their nonborrowing peers (other District banks with total deposits of less than \$500 million). Seasonal borrowers have significantly higher ratios of loans to deposits (68 percent vs. 59.1 percent) and have a higher portion of their loan portfolio invested in agricultural production loans (13.3 percent vs. 8.6 percent) than do nonborrowers.¹⁷ As a result, seasonal borrowers are less liquid than their peers, as measured by the ratio of fed funds sold to assets, the ratio of securities and fed funds sold to assets and the ratio of total securities to deposits. In addition, the higher purchased liabilities ratios (fed funds purchased to total liabilities and purchased liabilities to total liabilities) for seasonal borrowers are consistent with the notion that they have a

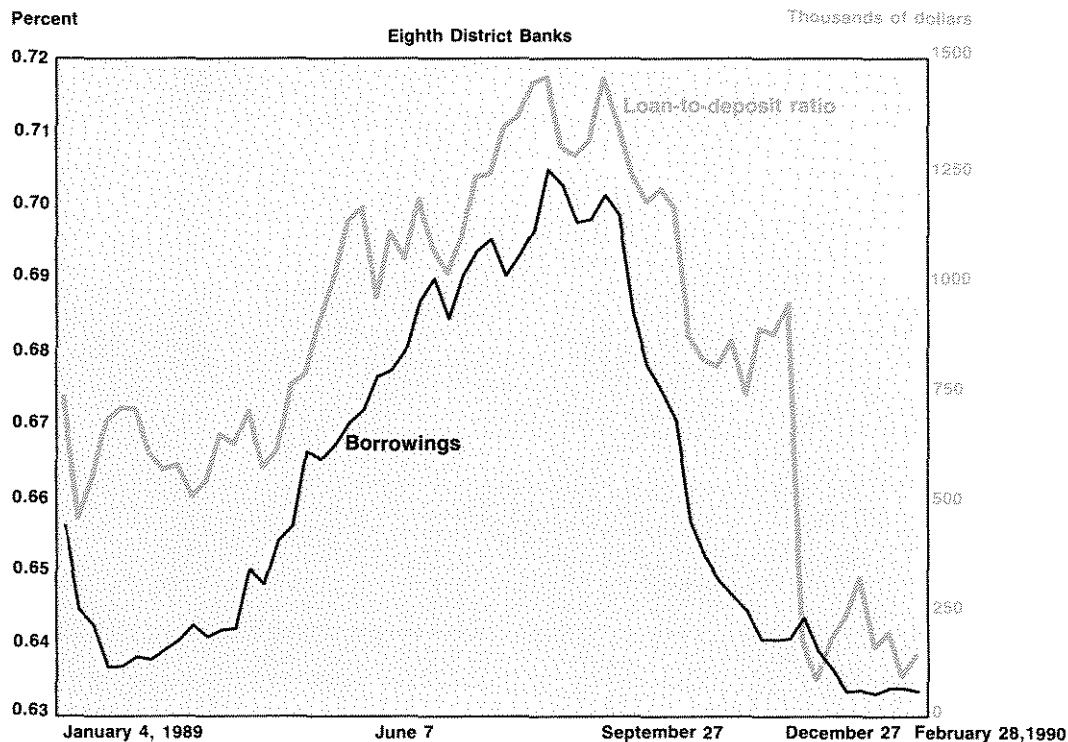
funding need that is not being met by local core deposits.

Another way to assess whether the SBP is meeting its objectives is to examine changes in the way banks operate after they begin using the program. "Before borrowing" and "while borrowing" balance sheet ratios of 42 District banks that borrowed in both 1988 and 1989, but not in 1986 or 1987, are presented in table 3 (first-quarter data) and table 4 (third-quarter data). As predicted from our earlier hypothetical bank model, banks that borrow seasonal credit do record higher loan-to-deposit ratios than they recorded in prior years, both in periods of low loan demand and periods of peak loan demand. For example, the average first quarter loan-to-deposit ratio for this group of borrowers rose from 57.5 percent before using the program to 61 percent while using the program.

¹⁶The data are taken from the quarterly Reports of Condition filed by all U.S. commercial banks.

¹⁷The differences in mean values of the ratios for borrowers and nonborrowers are statistically significant from zero at the 99 percent confidence level.

Figure 2
Average Weekly Seasonal Borrowings and the Loan-to-Deposit Ratio, 1989-90



SOURCE: Federal Reserve Bank of St. Louis Credit Office

Before becoming seasonal borrowers, this group of banks increased its average loan-to-deposit ratio by about 3.5 percentage points between the first quarter and the third quarter. They apparently funded this increased loan ratio by rearranging their balance sheets, reducing fed funds sold and securities holdings (from 36.7 percent of assets in the first quarter to 34.7 percent in the third quarter) and by increasing fed funds purchased (from 1.6 percent of total liabilities in the first quarter to 1.9 percent in the third quarter).

Once these banks began using the SBP, they were able to record higher loan-to-deposit ratios year-round and were able to increase the ratio by almost 6.5 percentage points between the

first and third quarters. Correspondingly, these banks held fewer liquid assets in periods of slack loan demand, as predicted by the hypothetical bank model outlined in the shaded insert on pages 54 and 55.

Based on the analysis outlined above, it appears that the SBP is meeting the objectives specified by the Board in establishing the program: providing a reliable line of credit to small institutions with seasonal loan demand to allow them to extend more loans to their communities throughout the year. It seems clear that these banks used the SBP to increase their loan-to-deposit ratios.¹⁸ What remains unclear is whether they would have been able to accomplish this without the SBP.

¹⁸Despite these results, which appear to show that the program is working, care should be taken in interpreting them. Because of factors such as changes in economic conditions over the 1986-89 period, it is uncertain how much change in the "before borrowing" and "while bor-

rowing" ratios can be attributed to the SBP. In other words, it is possible that the banks' behavior in the 1988 and 1989 period would have been the same in the absence of the SBP.

Table 2

Average Values of Eighth District Bank Balance Sheet Ratios, Third Quarter 1989

	Seasonal borrowers	Non-users of seasonal credit ¹	t-statistic
Loans/deposits	68.04%	59.10%	-7.97**
Agricultural loans/loans	13.32	8.55	-4.25**
Fed funds sold/assets	2.04	4.95	10.11**
Fed funds purchased/total liabilities	1.75	0.96	-3.12**
Purchased liabilities/total liabilities	1.78	0.98	-3.16**
Real estate agricultural loans/loans	6.55	7.73	1.93
Securities and fed funds sold/assets	31.97	37.71	6.17**
Commercial and industrial loans/loans	17.21	15.41	-2.07*
Total securities/deposits	34.97	37.35	2.00*
	n=149	n=1,089	

NOTE: t-statistics are for non-zero differences between means.

¹ With total deposits of less than \$500 million

* Significant at the 5 percent level

** Significant at the 1 percent level

SOURCE: FFIEC Reports of Condition for All Insured Commercial Banks, 1989.

IS THE SBP NECESSARY?

Financial markets have changed dramatically since the SBP was started in 1973. Most of these changes have given banks greater access to purchased funds. For example, the removal of interest rate ceilings and the introduction of new deposit instruments, such as NOW accounts and MMDAs, have allowed banks to be more competitive with both each other and other financial institutions in bidding for funds.¹⁹ Changes in market structure, especially the absorption of independent banks into one- or multibank holding companies and the growth

in statewide branching, together with innovations like bankers' banks, have provided additional sources of funds to small banks, both urban and rural.²⁰ These changes have made rural banks less dependent on local sources of funds.

In addition, the expanded availability of agricultural credit from nonagricultural bank sources such as cooperatives, the Farmers Home Administration, a revamped Farm Credit System and farm equipment companies, has diminished the role of local banks in meeting the funding needs of rural enterprises.²¹ Thus, whether

¹⁹See Mishkin (1989), pp. 243-53, for a discussion of financial innovation at commercial banks since the early 1970s.

²⁰Between 1980 and 1990, the proportion of small District banks associated with holding companies rose from 12 percent to 70 percent; at the national level, the share rose from 20 percent to 60 percent. Since 1975, 16 bankers' banks (in 16 states) have opened their doors. These cooperative depository institutions carry out many of the services typically provided by correspondent banks, includ-

ing the provision of federal funds to their members. The Eighth District has four bankers' banks, one each in Arkansas, Illinois, Kentucky and Missouri. More recently, a number of U.S. banks eligible for seasonal credit have become members of the Federal Home Loan Bank (FHLB) System, another potential source of short- and long-term funds for credit-strapped institutions.

²¹See, for example, Barkema and Drabenstott (1991), Sullivan (1990) and Melichar (1984).

Table 3
Two-Year Average Balance Sheet Ratios of Banks
Before and While Using the SBP

	Low Loan Demand Period (first quarter)		t-statistic
	Before borrowing (1986-87)	While borrowing (1988-89)	
Loans/deposits	57.52%	61.03%	2.94**
Agricultural loans/loans	8.95	7.46	-3.14**
Fed funds sold/assets	6.29	3.54	-4.36**
Fed funds purchased/total liabilities	1.58	1.76	0.59
Purchased liabilities/total liabilities	1.58	1.76	0.59
Real estate agricultural loans/loans	6.18	6.45	0.65
Securities and fed funds sold/assets	36.72	35.47	-1.25
Commercial and industrial loans/loans	23.09	20.38	-2.75**
Other loans/loans	61.78	65.71	3.48**
	n = 42	n = 42	

NOTE: t-statistics are for non-zero differences between means.

* Significant at the 5 percent level

** Significant at the 1 percent level

SOURCE: FFIEC Reports of Condition for All Insured Commercial Banks, 1986-89.

looking at the rural lender or borrower, financial innovations during the past 20 years suggest at least some relaxation in any constraints that might exist, which therefore leads to questions about the continuing necessity of the SBP.

One development in program usage that raises questions about the program's continued necessity in the St. Louis District is the composition of the borrowing banks. Although the program was designed for small, unit banks in rural areas, a significant portion of District seasonal borrowers in recent years have been located in metropolitan areas, and a clear majority have been part of a holding company struc-

ture.²² Table 5 shows the composition of seasonal borrowers by location and structure from 1985 through 1990. Approximately one-quarter of all program users were located in metropolitan statistical areas (MSAs).²³ Twenty of the 37 urban banks that borrowed in 1989 were located in the St. Louis metropolitan area. The diversified nature of the economic base of MSAs like St. Louis makes it less likely that local banks are dependent on any single industry for lending opportunities or that borrowers are dependent on a single source for credit. Urban banks may choose to specialize in a particular category of loans that exhibit seasonality, such

²²This latter development is not unique to the Eighth District. Graham (1979) found that a significant portion of seasonal borrowers in the Ninth District over the 1974 to 1978 period were affiliates of multibank holding companies. While the language of Regulation A does not preclude holding company and urban banks from participating in the SBP, studies completed in the early 1970s outlining a rationale

for the program indicate the program was targeted toward small, rural unit banks. See Board (1971).

²³The proportion of urban-affiliated banks would no doubt be higher if rural banks that were part of a holding company with affiliates in metropolitan areas were included in the figures.

Table 4
Two-Year Average Balance Sheet Ratios of Banks
Before and While Using the SBP

	Peak Loan Demand Period (third quarter)		
	Before borrowing (1986-87)	While borrowing (1988-89)	t-statistic
Loans/deposits	61.00%	67.40%	4.89**
Agricultural loans/loans	11.55	12.17	0.75
Fed funds sold/assets	3.80	2.31	-3.10**
Fed funds purchased/total liabilities	1.86	2.10	1.13
Purchased liabilities/total liabilities	1.90	2.11	0.99
Real estate agricultural loans/loans	6.30	6.12	-0.43
Securities and fed funds sold/assets	34.74	32.92	-2.25*
Commercial and industrial loans/loans	21.24	18.80	-2.66**
Other loans/loans	60.91	62.90	2.20*
	n = 42	n = 42	

NOTE: t-statistics are for non-zero differences between means.

* Significant at the 5 percent level

** Significant at the 1 percent level

SOURCE: FFIEC Reports of Condition for All Insured Commercial Banks, 1986-89.

as construction loans. It is not clear that the SBP was designed to provide assistance to banks that make this choice, however. It is even less clear that loan specialization should be encouraged, since it makes banks vulnerable to large losses should the industry suffer a downturn.²⁴ Moreover, urban banks would likely have access to regional if not national funding markets.

Independent banks (those not affiliated with a holding company) have accounted for less than 20 percent of the District's seasonal borrowers since 1986. In contrast, just under one-third of seasonal borrowers over the 1985-90 period were affiliated with multibank holding companies. Table 6 shows the composition of bank

holding companies with District seasonal borrowing subsidiaries, by size. While the majority of these holding companies were small, with two or three banks and consolidated deposits of less than \$500 million, a number of them were very large, with five to 39 affiliates and consolidated deposits in the \$1-billion-to-\$10-billion range. Banks that belong to a holding company, especially a large one, are thought to have better access to funding and capital markets, and studies have shown that holding companies are net suppliers of credit to their bank subsidiaries.²⁵ If this is the case, some of these borrowing banks may have alternatives to the SBP.

Further support for the notion that the seasonal borrowers in the latter half of the

²⁴See, for example, Belongia and Gilbert (1987).

²⁵See, for example, Rose and Talley (1983). It is also interesting to note that, over the period, several holding company banks (as many as five) had brokered deposit

liabilities on their balance sheets in years when they borrowed seasonal credit. In some years, a few independent banks were able to tap the brokered deposit market, too.

Table 5
Composition of Seasonal Borrowers
by Location and Structure, 1985-90

	1985	1986	1987	1988	1989	1990
Banks in metropolitan areas	12	15	31	40	37	28
Percent of total	(25.5)	(29.4)	(35.2)	(29.2)	(24.5)	(22.6)
Independent banks	12	8	14	24	30	17
Percent of total	(25.5)	(15.7)	(15.9)	(17.5)	(19.9)	(13.7)
One-bank holding company banks	25	28	45	73	74	71
Percent of total	(53.2)	(54.9)	(51.1)	(53.3)	(49.0)	(57.3)
Multibank holding company banks	10	15	29	40	47	36
Percent of total	(21.3)	(29.4)	(33.0)	(29.2)	(31.1)	(29.0)
Total banks	47	51	88	137	151	124

SOURCE: FFIEC Reports of Condition for All Insured Commercial Banks, 1985-90.

Table 6
U.S. Bank Holding Companies with Eighth District
Seasonal Borrowing Subsidiaries

Consolidated deposits	1985	1986	1987	1988	1989	1990
Less than \$200 million	28	32	55	83	92	86
Percent of total	(87.5)	(80.0)	(83.3)	(83.8)	(86.8)	(88.7)
\$200 million-\$500 million	1	4	7	9	6	6
Percent of total	(3.1)	(10.0)	(10.6)	(9.1)	(5.7)	(6.2)
\$500 million-\$1 billion	0	1	1	2	2	2
Percent of total	(0)	(2.5)	(1.5)	(2.0)	(1.9)	(2.1)
Greater than \$1 billion	3	3	3	5	6	3
Percent of total	(9.4)	(7.5)	(4.6)	(5.1)	(5.7)	(3.1)
Total holding companies	32	40	66	99	106	97

SOURCE: FFIEC Reports of Condition for All Insured Commercial Banks, 1985-90.

1980s had better access to nonlocal sources of funds than the institutions targeted by the program is found in table 7, which outlines the branching status of seasonal borrowers from 1985 through 1990. Less than one-third of all borrowers over the period were unit (non-branching) banks, and in each year, at least 40 percent of these banks had multiple branches. Branching allows banks to diversify geographically, expanding their deposit-taking and loan-making capabilities. Banks with both urban and rural branches presumably can shift funds within the banking organization to meet loan

demand and maximize profits. Banks with a small-scale branching network—where all branches are in one county or other local economic area—may have no more access to nonlocal credit or diversified lending opportunities, however, than a unit bank.

The effectiveness of a holding company structure or branching network in alleviating the asset-liability problems the SBP was designed to address are clearly institution-specific. Similarly, the location of a bank in an urban area does not automatically mean it can

Table 7
Branching Status of Eighth District Seasonal Borrowers

	1985	1986	1987	1988	1989	1990
Independent banks						
No branches	2	3	4	6	8	5
One branch	5	2	6	10	11	6
Multiple branches	5	3	4	8	11	6
Bank holding company banks						
No branches	4	9	16	24	28	32
One branch	7	11	23	30	36	29
Multiple branches	24	23	35	59	57	46
All banks						
No branches	6	12	20	30	36	37
Percent of total	(12.8)	(23.5)	(22.7)	(21.9)	(23.8)	(29.8)
One branch	12	13	29	40	47	35
Percent of total	(25.5)	(25.5)	(33.0)	(29.2)	(31.1)	(28.2)
Multiple branches	29	26	39	67	68	52
Percent of total	(61.7)	(51.0)	(44.3)	(48.9)	(45.0)	(41.9)
Total seasonal borrowers	47	51	88	137	151	124

SOURCE: FFIEC Reports of Condition for All Insured Commercial Banks, 1985-90.

tap national markets for purchased liabilities. Taken together, however, the evidence on the location, structure and branching status of Eighth District seasonal borrowers raises the possibility that the program is being used by banks that have access to alternative sources of credit.

CONCLUSION

The Federal Reserve's seasonal borrowing program was enacted in 1973 to help small rural banks fund seasonal loan demand, thereby ensuring that local credit needs were being met, especially in agriculture. Program use increased dramatically in the 1980s, as the number of eligible institutions and awareness of the program increased. Within the Eighth District, the number of banks using the program almost quadrupled between 1984 and 1989, before declining in 1990 and 1991. While financial innovations during the last 20 years have provided both borrowers and lenders with a wider array of funding opportunities, the program continues to operate because of a belief that small rural banks still find it difficult to accommodate seasonal loan demand.

An analysis of differences in balance sheet composition between Eighth District banks that

use the SBP and those that do not was generally supportive of the program. Seasonal borrowers had higher loan-to-deposit ratios, higher ratios of fed funds purchased to total liabilities and lower ratios of fed funds sold to assets than nonborrowing banks. An analysis of balance sheet ratios for a group of banks that used the program in both 1988 and 1989, but not in 1986 or 1987, showed that, in general, banks behaved as expected while borrowing: they recorded higher loan-to-deposit ratios in both low and peak demand periods.

The evidence of success is not unqualified, however, because no one can be sure how these banks would have behaved in the absence of the seasonal borrowing program. Moreover, it is impossible to say whether SBP users still lack reliable access to national credit markets. Given the relatively high proportion of recent program users that are located in urban areas, have branches and are holding company affiliates, a closer look at their alternative sources of credit seems warranted. The recent introduction of a market-related interest rate that reduces or eliminates the interest rate subsidy to borrowing banks, however, may weed out banks that have ready access to alternative sources of credit.

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Appendix

Qualifying and Using Seasonal Credit

Banks with sizable and recurring seasonal movements in their loans or deposits are eligible to apply for seasonal credit. Potentially eligible banks supply their local Reserve Bank with several years of monthly deposit and loan data. From these data, the estimated net funds availability (NFA) is calculated by subtracting total deposits from total loans for each month and each year of data supplied. A monthly average NFA (based on two to five years of monthly data) is then computed. The seasonal funding need for each month is calculated as the difference between the average monthly NFA and the largest, or peak, average monthly NFA.

A graduated deductible is then applied to determine the amount of credit the borrowing bank can obtain on a month-to-month basis. The deductible is equal to 2 percent of the first \$100 million of average deposits of the preceding calendar year, 6 percent of the next \$100 million, and 10 percent of the excess over \$200 million. For example, a bank with average annual deposits of \$150 million in the previous year would have a deductible equal to \$5 million $[(\$100 \text{ million} \times .02) + (\$50 \text{ million} \times .06)]$. Because of this graduated formula, few institutions with deposits of more than \$200 million

have a seasonal need that surpasses the deductible, so they rarely qualify to borrow.

Normally, seasonal borrowings are advanced with maturities up to 30 days. At maturity, the borrowing bank pays all interest accrued on the outstanding loan. Provided it still qualifies for a seasonal credit line, the bank may renew the loan, and continue to do so for up to nine months. Seasonal borrowings are usually collateralized with U.S. Treasury or agency securities. Some larger borrowers (with more than \$100 million in deposits) secure their credit lines with municipal securities or one-to-four-family mortgages.

At the time the seasonal credit line is approved, the borrowing bank is advised of its maximum net fed funds position and its net investment position. The net fed funds position is calculated as the difference between fed funds sold and fed funds purchased over the seasonal period. The net investment position is calculated by adding the bank's average securities held to the daily average net fed funds sold during the season. The net investment position gives a borrowing bank flexibility in managing its liquid assets, as long as its overall liquidity

position stays the same. Banks that exceed their limit are contacted by discount window officers when such violations are considered excessive. Banks that knowingly and continuously violate their limits face, among other penalties, non-renewal of seasonal lines in subsequent years.

In addition to their net fed funds and net investment limits, seasonal borrowers are also

advised that the borrowed funds are not to be used to purchase out-of-territory loans or loan participations from other institutions. In addition, affiliates of multibank holding companies are advised that seasonal credit is not to be used to fund operations of the parent holding company or any other affiliate.